CONFERENCE NOTES,

JOB TRAINING AND SAFETY CONFERENCE

Washington D. C.

November 17 - 21, 1947

Arranged by Program Planning Committee
D. B. Bidle, Illinois (Chairman)
C. A. High, Ohio
C. G. Alexander, Tennessee
O. L. Heath, Virginia

With the cooperation of
Management Division, Rural Electrification Administration
U. S. DEPARTMENT OF AGRICULTURE
and
Vocational Division, U. S. Office of Education
FEDERAL SECURITY AGENCY

M. L. Powers
11 17-47

A PRACTICAL APPROACH TO SAFETY

There is no such thing as a safety or training program, as such, in any industry. Safety and training are both functions of management, and the kind or quality of safety or training program is a responsibility of management.

WHO and WHAT is management? This poses a difficult question. There are those who contend that the management group includes all who make decisions and direct the work of other people. Others draw the line between management and labor at a higher level. I propose to leave the answer of the question up to the top management of each individual enterprise. Upon inspection of an organization, it is not difficult to determine where the line is drawn.

WHAT is management is a different kind of problem. It has been defined in many ways. A simple definition, suitable for this purpose, is GETTING WORK DONE THROUGH PEOPLE. It is true that, in addition to people, management is concerned with capital and equipment, but the actual work is not done by management, but by people.

If management has made adequate plans, given complete instructions, and made effective follow-up, both safety and training have been included.

The instruction of employees, the training of employees, is a function of management and cannot be otherwise regarded.

Some members of management have expressed the idea that training or safety is something they can elect or reject. It is not for management to decide IF it will have a training program. The only decision for management to make is WHAT KIND of a training program it will have. And, it might well be added, at what cost.

There are only two kinds of training programs:

1. Accidental
2. Organized

If management takes the attitude that it will have no training program, management is then obviously making a decision in favor of the accidental type program.

There isn't anything particularly wrong with the accidental type training. It has been used and has been effective since the beginning of time. People learn by accident and it is most certain that they well remember lessons so learned.

As I have said, there isn't anything particularly wrong with the accidental type training, IF MANAGEMENT WANTS TO PAY THE PRICE.

Take a recent case as an example. A man was hired to make a fourth member of a crew. The old tried and proven method of training was used. He was put with an experienced man and put to work. On the fourth day, he put his hand in the wrong place and the hand was mashed off. Then came seven weeks' lost time, hospital bills, compensation, settlement, lawyer and court cost, etc., at a cost of approximately $4000.

The training was good. The man will never forget that lesson. The main difficulty is that the man can learn only one more such lesson. He has only one more hand.

The point I am trying to make is that it seems like $4000 for four days, or $1000 per day per man is too much to pay for training, to say nothing of the suffering and handicap incurred by the man.

Training is a function of management.

Training begins the day a man begins work.

Training continues indefinitely.

What is the function of a safety and training supervisor?

He functions as a staff employee. He serves as counsel or advisor to management. He aids management in the discharge of its responsibility. He has no responsibility for training other than responsibility for the quality of the advice he gives. He aids management by assisting in:

1. Planning for training and safety.
2. Instructing various levels of management in training techinques and procedures.
3. Follow-up to see what plans are carried out.

An effective program of organized training will be based on a well-develope plan. It will include provision for the training of supervisors in:

1. Techniques of instructing employees.
2. The handling of human relations problems.
3. Effective utilization of labor and equipment.
4. Analysis of problems and development of training procedures.
5. How to make effective follow-up as to:
   a. Quality of instruction given.
   b. Giving assistance with difficulties.
   c. Discovering and discussing new problems.
   d. Making corrections and effecting improvements.

We in Oklahoma propose to conduct a safety and training program according to a plan. The plan was developed with management. It will be management's responsibility to do the actual training. We will assist management in the execution of the program.

The plan includes three parts:

I. Supervisory Development.

It is recognized that supervision and/or management must assume full responsibility for training and safety. In order to competently handle this function supervision must be trained The supervisory development includes:

1. Making all supervisors first-aid instructors.
2. Techniques of giving on-the-job instruction.
3. Techniques of giving related information instruction.
4. Use of instructional material.
5. Handling personnel.
6. Planning work.
7. Methods improvement.
8. Conducting training meetings on safe procedures and operational problems.

II. Hold district meetings to give instructions to employees regarding:

A. Introduction of new methods.

B. Introduction of new equipment.

In these meetings local supervision will do as much as possible of the instructing. The training supervisor makes arrangements and assists with the planning.

III. Make a follow-up.

Here management has the services of a specialist to "look in" periodically to see how things are going and to give to management the benefit of his findings. This service would provide:

1. Periodic inspection of all equipment, tools, and properties.
2. Discussion of training and safety problems with supervision and management.

IV. Top Management.

Last, but not least, is top management training. Top management readily sees a need for training others in the skills of supervision, but he isn't so quick to admit that he could use a little training.

Top management receives considerable training through counselling with the training supervisor through analyzing the problems of management and working out plans for improvements. It is anticipated that conferences for the top management group will be organized periodically for discussion of:

1. The progress of training.
2. Management difficulties and means of improving.
3. Planning the future program.
4. Other functions of management.

In conclusion, I would like to review several points.

1. Safety and training is a management function. It is not for management to decide IF training will be done, but HOW, by accidental or organized means and at what cost.

2. The training supervisor functions most effectively as a staff officer. He is not responsible for training, only for the quality of the advice and assistance he gives. If the training supervisor is given line-officer authority and responsibility, his usefulness is over. A line supervisor will not be told by an outsider how his job should be done.

3. Organized training must be done according to plan, a management plan. The training supervisor assists management to carry out its plan.

It is interesting to note that in this case the more costly program is not the better. The cheaper program, dollar wise, is the better.

A well-organized training program will produce many tangible results as well as intangible where dollar value is present, but difficult to determine.

Some results to be expected from organized training procedures are:

1. Lower training costs.
2. Fewer accidents.
3. Less breakage and wear of equipment.
4. Better informed management and supervision
5. Better informed employees.

E.H. Kellogg
11-17-47

REPORTING AND INVESTIGATING ACCIDENTS

In considering the subject "Investigating and Reporting Accidents" I have been informed through conversation with Mr. LaMaster that the Rural Electrification Administration receives about 70% of the reports on lost-time accidents. In Indiana I am not prepared to say what percentage of the reports I am receiving. I do know of specific cases in which reports have been made to Washington and none made to the State Supervisor. In the particular instances I came across I am satisfied that the project was not aware of my wanting copies of accident reports, and I have been assured of future cooperation. I recognize that this situation will recur but by continually working with the project managers I will in time get more reports from them.

These are, of course, lost-time accidents that I am referring to. We should have 100% of these reports and not 70%. It is a goal to strive for and will take a great deal of effort on our part to reach.

I also feel that I should receive reports of all minor injuries that require first aid. For this purpose a short, convenient, and simple form that can be made in duplicate would be sufficient. One copy to be retained by the project and one copy to my office. I recognize that any reports requested must be just as easy and simple and convenient as possible, for the projects to fill out and mail. If we ask for a complicated and long report and insist on many details, we just won't get the reports. A record of recurring accidents is our only means of getting at the causes of them. As an example I think we would be surprised at the number of cases of temporary blindness caused by switching arcs, that are occurring

regularly on our projects. If we did we would probably be carrying on a campaign for flash goggles on all switching operations and even so far as fusing transformers. This minor injury report is also protection to the injured in infection cases resulting from cuts and scratches. The record of his accident as to time, place, cause, probable effect, and first aid rendered would be on file to substantiate any later claims against the insurance carrier. From our side as Safety supervisors these reports are again valuable information to carry on campaigns against constantly recurring types of minor accidents. Isn't it true that the old adage about taking care of the pennies and the dollars will take care of themselves, has a parallel in safety? A worker who is trained to be on the alert for minor injuries, is a well-trained worker to protect himself against major accidents.

I enumerated time, place, cause, probably effect and first-aid rendered in speaking of accident reports. We feel that those are probably the bare essentials that will be of the greatest value in analyzing accidents. Our best information will come from the cause. What conditions existed to bring about the accident?

In order to make accident reporting as simple as possible, one set of safety rules I have encountered lists sixteen causes that will be contributory, and insists that the properly-numbered one be placed on the accident report by the worker. They are: (1) class of work beyond the physical or mental ability of the injured; (2) improper tools or devices; (3) lack of proper instruction; (4) method pursued not suitable for work; (5) protective devices not used; (6) rules or instructions not observed; (7) protective devices not provided; (8) lack of proper inspection and maintenance, defective tools, materials and devices; (9) contributory negligence of others;

(10) intemperance; (11) mechanical manner of doing work, lack of concentration; (12) haste; (13) unfit physical condition of injured; (14) poor judgment; (15) wilfullness; and (16) conditions beyond control.

This is undoubtedly the simplest way of getting the information and very effective. What I cannot understand in the use of sixteen numbers is: how to get the injured to admit that he had used poor judgment, No. 14; or that he had not observed the rules and instructions, No. 6. It is far too easy to go down the line to number 16 that says: "Conditions beyond control". When that is done as a means to protect against self incrimination, the accident report becomes worthless to us as a source of information with which to work on accident prevention. Reports are the best known method of judging our work. They, along with the total man hours worked, are the necessary information with which to work out accident frequency records. By them we will know whether we are above or below the national average of utilities of 14.8 accidents per million man hours worked.

In conclusion, our biggest job in getting accident reports, and using them to their best advantage, is to get the cooperation of the projects. We must convince them of the need and importance to a safety program; of giving us, not 70%, but rather 100% of the accident reports.

F.H. LaMaster
11-17-47

THE THREE MUSKETEERS OF ACCIDENT REPORTS AND INVESTIGATIONS

1. How did the accident occur?
2. Why did the accident occur?
3. What can be done to prevent the recurrence of similar accidents?

PATTERN OF INVESTIGATION

The Injured

1. Name_____, age_____, occupation_____, class_____.
2. Experience.
3. Nature of injury (electric shock, etc.).
4. Extent of injury (fatal, 3rd degree burns, etc.).
5. Date and time of accident.
6. Employer.
7. Type structure (include sketch with clearances, position, etc.).

The Accident

1. Description of accident (include weather)
2. Job to be done - progress of job.
3. Description of related conditions or practices.
4. Attitude - Instructions given.

The Causes

1. Unsafe conditions.
2. Unsafe practices.
3. Reason for unsafe acts.

Recommendations

1. Immediate or specific.
2. General to eliminate underlying causes.

D.B. Bidle
11-18-47

WHAT IS THE NEED FOR INSTRUCTIONAL MATERIAL?

There is a definite need for instructional material because there is no source from which the lineman can get the information he needs and wants written in such a way that he can read and understand it.

The electric lineman's job today is such that brains and skill are more essential than brawn as was the case in the past. It calls for a highly-trained technician specialized in the operation and maintenance of apparatus and lines.

We must not only train the new men, but we must re-train the older men and this can best be done with the development and use of instructional material. This material must be written so that men not only can and will read it - they must be able to understand it.

There are many manuals and handbooks already on the market, but they were written by engineers for engineers and are, for the most part, over the head of the average lineman. Very few, if any, linemen are college graduates. Many have never attended high school and some didn't get through the grades, through no fault of their own; still, they would like to read and study if they can understand what they read. The right kind of material will shorten the training period and develop a more efficient, loyal, and safe worker.

(A) What is job training?

Teaching the workman to manipulate his hands and tools until he has acquired sufficient skill to enable him to do, with or without supervision, any job within the scope of his trade.

(B) What materials are needed for job training?

The materials used on job, plus diagrams, charts, prints, and procedure manuals, showing the safest known way of doing a job of work. He also needs the right kind of supervision by a trade-competent trainer.

(C) What is informational training?

Informational training is giving the learner the fundamental and technical knowledge of the job, an understanding of why the job is necessary. The characteristics, strength, and nature of the materials used; the principles of operation of equipment and apparatus; how it is made. Job training teaches skill; informational training gives understanding and understanding makes for appreciation of the job and work.

(D) What materials are needed for informational training?

Anything that gives the learner knowledge or at least a chance to get the knowledge of the job, such as manuals, textbooks, job procedure sheets, visual aids and models.

(E) To what extent can instructional material be made uniform throughout the nation?

By developing such materials that can be adapted, but not adopted to every specific job. Since most jobs in all States are fundamentally the same, every State should contribute

to some sort of manual that can be used on every job. The greater difference is not in the kind of jobs to be done, but in the method of doing them. Any one State or man cannot prepare and develop material that will be acceptable to every one else, but working together such as the group that met last summer and pooled their ideas, and information material can and will be developed that can be adapted to any situation in the nation. Job trainers and safety instructors from every State should meet once a year and expand and continue the good work that has been done so far. An exchange of work ideas and practices will create a better understanding between the workers in all States and make a big advance in the goal we are all working for - the elimination of accidents in work.

(a) How to use job training material?

Give the worker the materials to study after it has been explained to him what it is and the purpose for giving it to him. The instructor can go over such material in the class to make sure the worker understands it. The foreman or supervisor should follow up to see that it is being used and to give further instructions.

(b) How to use informational material?

Informational material can best be used in the meetings going through it thoroughly so that each man knows its purpose, then give each ocopies to take home and study. The learner will read it if the material is interesting and gives him what he desires.

(c) What factors determine the success of such materials?

Check up on the worker at intervals to see if he has actually used it and give him a test once in a while. Organizing classes with a competent teacher about once a week would be very effective. The interest created by this material and how well it is presented are the factors determining its success.

T.L. Hankins
11-18-47

Summary of Panel Discussion
on

DEVELOPING AND USING REA INSTRUCTIONAL MATERIALS

by

Thomas L. Hankins
Professor of Industrial Education
University of Kentucky, Lexington

Panel Members:

E. P. Chandler, Chairman, State Supervisor, Trade and Industrial Education, Oklahoma

D. W. Aiken, Teacher-Trainer, Mississippi State College

D. B. Bidle, REA Training Supervisor, Illinois

Ben Jones, Assistant State Supervisor, Trade and Industrial Education, Tennessee

W. C. Brown, Assistant State Supervisor, Trade and Industrial Education, Missouri

Aiken: WHAT IS THE PURPOSE OF INSTRUCTIONAL MATERIALS?

Learning results from impressions or sensations received through one or more of the senses. Teachers err greatly in lecturing too much. Investigations show that more than 80 percent of all we learn is through the sense of sight.

Teachers should recognize two types of intelligence (a) abstract, and (b) mechanical.

The main purposes of instructional materials are (a) to help men with their everyday problems and (2) to aid the instructor in doing a better job.

Bidle: WHAT ARE THE NEEDS FOR INSTRUCTIONAL MATERIALS IN REA TRAINING?

Mr. Bidle listed 8 specific needs or reasons. They are:

1. There is at present no source for such materials.
2. Brains instead of brawn is now the prime requisite for a lineman.
3. New workers must be trained and experienced workers retrained.
4. Most available material was written by engineers and is too difficult for linemen.
5. Linemen need something to tell them the why of their work.
6. Manuals that tell how to do the jobs are necessary.
7. Characteristics of materials should be known.
8. Instructional materials are needed that can be adapted for use on any co-op in the country.

Jones: WHAT REQUIREMENTS MUST BE PLACED ON INSTRUCTIONAL MATERIALS TO MEET THE NEEDS STATED?

The requirements listed by Mr. Jones for the materials suggested by Mr. Bidle are:

1. Be written for men at the lowest educational level in the group.
2. Apply specifically to workers' jobs.
3. Be written in simple and direct language.
4. Be based on some type of job analysis.
5. Be clear and concise.
6. Be organized in an orderly manner.
7. Be reproduced clearly.
8. Be uniform in size as to fit in some kind of binder.
9. Have a generous number of illustrations.
10. Be punched for standard ring-type binder.

11. Be numbered for filing and cross reference.

12. Follow some standard style or pattern.

Brown: HOW MAY USUABLE INSTRUCTIONAL MATERIALS BE DEVELOPED?

The factors were listed as important to observe when developing worth while materials:

1. Determine course content.
2. Study accident reports as an aid in determining content.
3. Observe what men actually do in the field.
4. Study material developed in foreman conferences.

Dr. Aiken returned to discuss:

WHAT ARE FUTURE TRENDS IN DEVELOPING REA INSTRUCTIONAL MATERIALS?

Among the more important points made were these:

1. Have a central clearing house for all such materials developed by the several States. The U.S. Office of Education or the National office of the REA were suggested as logical agencies for this job.
2. Decide who in a State is to receive materials. They should go to the instructor and his supervisor.
3. Hold a number of national and regional conferences.
4. Encourage one university or college in the country to offer a two-week credit course each year that would include instruction in (a) developing materials and (b) teaching techniques.
5. Only instructors can do an effective job in developing instructional materials for their fields.

Perhaps above all else the discussion served to focus attention on the need for standardization of courses and course content, and the need for a central agency to furnish leadership in coordinating the training activities now being carried on in the several States represented in the program.

CHANGES IN REA SPECIFICATIONS

Contrary to the opinion of some Electric Light men, I am of the opinion that REA Specifications as a whole are the best in the Electric Light Business for serving the rural territories. I have been associated with different companies, both private and public, and have been impressed by the REA engineers making a special effort to get the man that climbs the pole to offer suggestions. This is something new in the electric business and I feel that it has paid dividends.

Good engineering has much to do with preventing accidents as any other department in the Electric Light Business. I feel that the practical man and the engineer need each other to make our business better and safer. Good engineering is the basis for good sound planning. Sound planning is the answer to accident prevention.

Each plate in our specification book should have a job procedure attached to it. This job procedure should be the work of a committee composed of engineers and men doing the job. Each step should be discussed and the possibilities of an accident eliminated - then we will have gone a long ways in eliminating accidents.

Let us go through steps that are necessary to properly plan a job:

PLANNING

Consumer Signs Application

Step No. I. Accounting Department

A. Collect and deposit membership fee

B. Address

1. Mailing address

a. To insure consumer that they will receive their bill promptly and at the correct address.

2. Service address

a. To assist engineers, line foremen and service men, and collectors in locating place work is to be done.

3. Get information of approximate load and class of service wanted.

Step No. II. Engineering Department

A. Survey of load and location.

B. Selection of material and equipment needed to serve consumer.

C. Prepare work order to serve consumer.

1. Economy.

2. Voltage regulation.

3. Continuity of service

4. Safety to public.

5. Safety to employees.

Step No. III. Construction Job - Completing work order

Step No. IV. Operating

In steps of planning, let us discuss some of the accidents that we have had and see if engineering has played an important role as a contributing factor to accidents. Let us discuss specification changes that you think would help make our profession safer and our service more dependable.

Accident No. 1. Reported in REA LINEMAN, June 1947.

REA crew installing 3-phase primary circuit under private power company, 3-phase circuit serving REA substation. REA crew let their conductor flip into power company 3-phase circuit.

a. Would there have been sufficient clearance between the two circuits after both were installed?

b. Without a joint use pole at point of crossing what will happen if both circuits load up with with ice?

c. Without a joint use pole what will happen during high winds?

d. With joint use pole new conductors could have been tied to cross arm carrying REA circuit and prevented new conductor from flipping into power company circuit.

Suggested change: As far as possible use joint use pole at all circuit crossings.

Accident No. 2. Reported in REA LINEMAN

3-phase circuit dead-ended on cross arms. One phase stopped and two phases continue. Changing pin position of conductor.

Lineman de-energized wrong phase. Removed hot line clamp.

3-Changes in REA Specifications

a. Definition of hot line clamp.

A device for making a branch circuit hot and shall not be used from time to time as a disconnecting device.

b. It is necessary to have all departments properly planned if we expect the man doing the job to properly plan. If any department ignores the manufacturer's recommendation then you may expect the man doing the job to ignore his company's recommendation.

c. Would switches be better for this job?

d. National Safety Code: In order to safeguard electrical workers it is necessary that lines should be arranged systematically by having conductors occupy definite positions throughout a system, as far as practicable. Failure to follow this practice leads to accidents to persons as well as to a lowering of the grade of the service rendered.

Pin position changes could be eliminated by starting at sub and balancing load for entire circuit. If pin position is changed it should be so marked and gone over with the operating man.

e. Would these accidents have happened if sectionizing equipment was moved one span from juntion poles?

OPEN TO GROUP

Suggestions from Supervisors' Conference to discontinue use of jumper as a grounding device.

If hot line clamps were replaced with switches could jumper be used as grounding device?

Hot line clamps attached to conductor has caused many cases of trouble and if switch was used and fastened to line with permanent clamp would this case of trouble be eliminated? Are hot line clamps a hazard on a C-4?

Objectives of these accidents:

1. Move all sectionizing equipment one span from junction poles.

2. Keep same pin position throughout system.

3. Discontinuance use of hot line clamps as means for connecting and disconnecting circuits.

4-Changes in REA Specifications

Other suggested specification changes from the Co-ops in Mississippi:

1. Location of ground wire - move opposite neutral. Procedure for keeping phase from falling on man.

2. Transformer installations

   G136-1½

3. Distribution in villages and towns.

   Use of W.P. Secondaries. Several services off one pole.

4. Specifications for transformer bank installations.

5. Wiring diagrams for transformer banks.

6. Wiring diagrams for meter installations of different manufacturers.

H. C. Potthast
11-20-47

A TEACHING DEMONSTRATION

A demonstration of a teaching aid used in Wisconsin for the purpose of teaching the transforming of electric current.

This aid, called "Bettsie" for short, is a lamented-iron coil wound at the lower end with one pound of #20 cotton-covered copper wire.

Bettsie, when energized, becomes an electro magnet. By placing coils of wire over the upper end, it becomes a transformer.

By increasing or decreasing the number of turns in the secondary coils, one can show how the change of voltages are affected. Polarity can be shown by turning one of the secondary's coils so that the turns run in the opposite direction from each other. By adding more iron in the coil you can show how it will affect the voltage.

There are many other phases of transforming electric current which can be demonstrated by this device.

We will try and make a break down and explanation of the uses of this device and mail it for use by others wanting it.

T. A. Findlay
11-20-47

PRESENTATION OF TRANSFORMER HOOK-UPS

A number of projects in Minnesota requested instruction in transformer hook-up. At first I endeavored to present and illustrate transformer hook-ups by drawings.

More than one lineman said, "Tom, those diagrams or maze of lines may be quite clear to you or anyone who has some experience in those hook-ups, but I don't get it."

Realizing that I was dealing with men who had considerable mechanical aptitude, but not much use for abstract theory, I decided I had better adopt a different teaching aid to get hook-ups across.

This model transformer bank is the result of that need, construction -

Cases - coffee cannisters

High-voltage Bushings - 10 MM spark plugs.

Low-voltage Terminals - Plastic bottle caps, stove bolts plus wing nuts for ease in making connections.

Sub-station frame and Busses - miscellaneous scrap metal and wood.

Case - Plywood with luggage grip for protection and convenience in transportation.

Jumpers - High-tension small wire, low-tension large wire to illustrate ratio.

In constructing model I tried to keep in mind proven teaching ideas such as contrasting colors, especially in the Busses.

In the presentation I try to coordinate these colors with my drawings on the blackboard. The proof of the pudding is in the eating. After using this teaching aid over the entire State I can say that it has been very successful in "getting across" transformer connections.

SUMMARY OF REA OFFICE OF EDUCATION CONFERENCE FOR JOB INSTRUCTORS

by Robert Reese, State Supervisor, Trade and Industrial Education (Ohio)

I believe that the general feeling of everyone at this conference is that the program of job training for the rural electric cooperatives is an educational program. Although starting as under the title "safety training", we have come to the inevitable conclusion that the only way to carry out a safety program is through adequate job instruction. The statement that "a job well done and correctly done is safely performed", is still a very true statement.

It appears from the conference this week that more and more emphasis is being placed upon the teaching of job skills and job understanding rather than the teaching of segregated academically titled courses, such as, mathematics, science, etc. I also feel that we are now moving toward a more sound and progressive program when we begin with the assumption that job training and safety programs both are the function and the responsibility of management. The speaker who referred to two types of training - accidental and organized - certainly hit the nail on the head. Too much of our instruction in breaking in new men on the job is of the accidental type. I do not think there is ever a decision required as to the need for job instruction, but rather "how will we go about it?".

Certainly during this week, a definite need has also been expressed for a program of development of adequate instructional materials; that these must be developed by competent tradesmen with editing and the organization of the material on good educational principles being the job of the vocational educators. Certainly everyone at this conference has stressed the need for all instructional materials to be practical, usuable, and of a coordinating nature.

One of our speakers during the week brought to our attention the importance of public relations. Some of them may not be too sure what is meant by public relations, but to me it is what happens inside me personally whenever I come into contact with a person or an object connected with an agency or business. It may be the manager or the janitor; it may be the service crew, or it may merely be a company car with the name on the side. My feelings concerning this particular company or agency will be determined by the reaction I have when I see any of these things.

Another very vital point which came out of our week's work is the feeling that we as job instructors should recognize that we are a part of an educational program, and as such we should at all times be professional in our actions and in our attitudes. We have heard much during the week statistically that many of our accidents are caused by human failure, which in turn is based upon mental attitudes. To me the only way of correcting this type of situation is that in our job training program, we should continually work toward the development of a safety consciousness which will consistently cause the individual to anticipate hazards before he acts. Another thing that comes about through the development of safety consciousness is reducing the number of unsafe acts that are performed. Every unsafe act is a potential accident but even though an accident does not occur, I think that any of us that have had close calls in one way or another realizes the mental anguish and the effect on mental and physical beings after such a brush with death.

In closing, I would like to emphasize that if we have learned nothing else the past week, it seems to me that two things have been brought to the front.

1. That while some of us are saying that a thing can not be done, others are doing it; and

2. That we should study and respect the past, but use the past only as a guide post and not as a hitching post.

I think that the committee and those responsible for planning this conference should be complimented in their organization of the program for such a successful week, particularly with regard to the training program that all of us had the opportunity of receiving in the afternoons.

It seems to me that perhaps these conferences are now being planned on a basis of continuity, and that each year we will progress farther and farther along the road to success in out training program. However, the final proof of any conference is what happens afterwards, and I feel that we should all be challenged to return to our respective homes and jobs and place into use just as many of the ideas that we have received at this conference as humanly possible.

RMR:FNF

TRUCK AND TOOL INSPECTION

C. A. High - Ohio

Management's Responsibility

It is a well known fact that the lack of proper inspection has caused the Electrical Industry thousands of dollars in loss of equipment and time. Management has been lax in this responsibility. Consequently, a selling job is required before an effective inspection plan can be used.

Importance of a Competent Man for Inspection

He must know tools and trucks; he must be mechanically inclined; he must know how to determine a defective tool. He must be honest, courageous, and use good judgement.

Importance of the Truck Driver

Eighty-eight percent of truck and automobile accidents are the result of human failures, not the failure of any mechanical part.

Here is a list of items to be inspected:

1. Axle (front)
2. Axle (rear)
3. Body and cab
4. Brake system
5. Clutch
6. Cooling system
7. Electrical system
8. Engine
9. Frame springs and mounting
10. Fuel and exhaust system
11. Special equipment
12. Steering system
13. Transmission
14. Wheels, rims and tires
15. Propeller shaft (drive line)

I would like to break down to some extent this thing called inspection for trucks. Let's refer to the classifications as A, B, C, D, and E.

> A - then, is the daily inspection or the times the truck is garaged. It includes all servicing operations, such as fuel, water, light inspection, looking for water or oil leaks, and testing some of the above items, such as brakes and clutch.

B - then, is primarily designed to fit the lubrication period. The kind of lubricant used, design of the equipment, and operating conditions all affect the mileage interval. This inspection from 1,000 to 2,000 miles.

C - then, covers most of the adjustments and tests, plus a heavy inspection with repairs and replacement parts when needed. This inspection from 4,000 to 10,000 miles.

D - then, is extensive repairs; replacing piston rings, engine bearing adjustments, etc. This inspection from 25,000 to 50,000 miles.

E - then, is the period when engine is removed and rebuilt. Body work, and paint jobs fit into this type of overhaul.

The success of this kind of a program depends on regular and complete inspection. To assure that inspections are thoroughly and regularly made, check lists are needed.

You can see that I am more concerned with the truck than I am with the tools, simply because we can replace a tool - never a man when he is dead.

Let's just use the check list for inspection on 1,000 to 2,000 miles so you may see the magnitude of the list. A similar list might well be used for other inspections.

1. Lubricate. Manufacturer's recommendations.
2. Crankcase oil level
3. Differential and transmission
4. Radiator (water or anti-freeze)
5. Distributor
6. Spark plugs
7. Ignition
8. Adjust fan belt
9. Tighten water pump
10. Clean fuel pump
11. Adjust carburetor
12. Inspect for gas, oil, or water leaks (engine hot and cold)
13. Check battery and all battery connections
14. Adjust clutch and hand brake connections
15. Check oil pressure
16. Check all instruments
17. Check steering wheel for play
18. Inspect universal joints
19. Check brakes, check master cylinder, oil level and vacuum tank
20. Inspect radius rods
21. Test all lights, rear view mirror
22. Tighten all wheel nuts
23. Check and inflate all tires - the spare is also a tire, in some cases
24. Check trailor hitches

I believe with such a list we cannot go too far astray. In my opinion, we have neglected one part of our obligation to the co-op boys when we fail to include in our training program safe truck maintenance and operation.

Tool Inspection

What should be the basis for inspection of tools? First in importance - a complete list of all tools carried on each truck. This list is to be carried in the truck. We suggest this for ease in making the inspection. In other words, the inspector will know from the list what tools are carried. I might suggest this list carry both the trade name and the lineman's term for each tool. You fellows know they vary somewhat.

Second - an identification mark on every tool for each truck. In other words each truck should have its own mark. This is important from the standpoint of getting tools on the wrong truck. If they are clearly marked, it will help in keeping tools where they belong.

Third - the man in charge of inspection should be given the authority to discard worn or defective tools. No procedure can hope to be effective without such authority.

Fourth - alternate the inspection. In other words, inspect each others tools. Never inspect your own. You may not be honest.

Last - how often should inspection of tools be made?

Personal tools - every day
Rubber gloves - 30 - 60 days (air test every day before using)
Company tools - every week
Fuseing sticks, etc. - every day

Conclusion

This subject of inspection is a real problem. It demands earnest thought, study, and deliberation on the part of all of us.

"Danger prevails when caution fails."

RESOLUTIONS

The Resolutions Committee of the 1947 REA Job Training and Safety Instructors submits the following resolutions for consideration by the Conference. These resolutions were unanimously adopted:

Resolved that all grounds and the neutral conductor be removed from any pole on which live-line work is being done with live-line tools, when possible.

Resolved that oil circuit breaker installations be such that hot-line clamps be installed on both load and line side.

Resolved that hot-line clamps be installed only on line sides of single or repeating sectionalizing and protective equipment.

Resolved that line trucks be grounded when setting poles in or near energized lines, or any time that the truck can become energized from any source.

Resolved that hot-stick work be done only by qualified and trained workmen under adequate supervision.

Resolved that we continue urging the use of rubber gloves from the ground up.

Resolved that the eye-bolt supporting the primary take-off on an A5 addition to an A1 or A2 be lowered to a point six inches below the bottom of the pole top pin, and the neutral conductor be lowered accordingly.

Resolved that on any transformer or other assembly which does not conform with standard specifications, when work must be performed on the assembly, the assembly be rehung according to our present specifications.

Resolved that the phase jumper be buttoned back upon itself and not used as a grounding device.

Recommend that the condition of ground resistance be determined at the time of ground rod installation according to REA specifications and codes governing this operation.

Resolved that paralleled transformers be plainly identified in some manner.

Resolved that the Engineering Division furnish all job training and safety instructors with an up-to-date file of engineering memoranda, and keep it up to date.

Resolved that the Management Division furnish all job training and safety instructors with an up-to-date file of all management memoranda pertaining to job training and safety, and keep it up to date.

Resolved that when hot-line taps be removed from energized lines, hot-line sticks be removed from pole.

Resolved that hold-off tags be placed on all sectionalizing devices where lines are de-energized.

Resolved to hold district conferences for the purpose of developing and teaching instructional material to the REA job training and safety instructors and to encourage college credit for teacher training courses.

Resolved that the U. S. Office of Education be used as a "clearing house" for instructional materials, and mailing lists:

a. Of Trade and Industrial Education supervisors available to states having REA programs.

b. Of Job Training and Safety Instructors available to persons participating in the annual training conference.

Resolved that the Chairman of this Conference write the Program Committee Chairman of the Utilities Section, National Safety Council to include in the 1948 National Safety Congress program the subject "Rural Electrical Line Work."

Suggestion that Planning Committee give consideration to having stenographer take notes at our next annual meeting to be supplemented by the speaker's draft or outline; proceedings to be reprinted so that all in attendance receive copies.

Resolved that a uniform accident report be used throughout the country with at least the following: STATE ACCIDENT AS HAPPENED, causes and possible remedies.

Resolved that Job Training and Safety Instructors stress and carry to all co-op employees the importance and necessity of maintaining good public relations in each individual organization within the project area. In doing this, we must not lose sight of the importance of having the active participation and support of the local board of directors.

Resolved that we thank Mr. Hill and his staff and the Planning Committee for inviting us to this Conference. Special thanks is also due to Mr. Cooper, Mr. Ross, and all Trade and Industrial Educators for the training given.

Respectfully Submitted,

W. L. DeVaughan, North Carolina
Chester A. Strait, Iowa
J. C. Staff, Kansas
J. H. Couch, Tennessee
I. K. Boggs, Missouri - Chairman

LEADERSHIP IN RURAL ELECTRIFICATION JOB TRAINING*

by W. A. Ross

Every thinking person realizes that leadership, as a subject of study, has extreme breadth as well as great depth. Its scope is vast and the ramifications many. Perhaps no subject has received more individual thought since the beginning of time than leadership, yet hard and fast "success rules" for developing and exerting leadership are difficult to formulate. What one man has learned from the accumulation of race experience may be insufficient, inadequate and wanting in order to meet a given situation. What another man--perhaps untrained formally in the ways of leadership--is sometimes able to accomplish as a leader is unbelievable. Developing leadership ability will ever remain one of the great challenges to mankind.

Leadership is characterized in a good many different ways. Its definitions are many and they are variously worded. Some say leadership is the "art of handling people." Some designate it as the "successful handling of organized relationships among people." A well-accepted definition by Ordway Tead runs like this: "Leadership is the activity of influencing people to cooperate toward some goal which they come to find desirable."

Certainly in our present-day complicated, organized relationships, there is an "art" to directing the work of others successfully. Leadership is action--and the kind of action which results in the individual concerned having the sincere desire to do the thing which will be best for himself and others with whom he works or associates.

I think of a leader as one who comes up from the crowd--an individual who, through the years, shows his fitness and ability to lead because of qualities which inspire confidence, and which have a drawing power for constructive activity. I think of so-called leaders as either sincere or unscrupulous, weak or strong, and in general of the "bossy" or "human" type.

In identifying the essentials of anything, we can put our materials through a series of screens--so to speak--running from those of very coarse mesh to those which screen out the finest particles. In the time allotted today we shall have to look at the larger elements, the bigger things in leadership, recognizing the fact that they can be further subdivided in our minds. Let's look at some leadership essentials:

1. The right attitude. It is often said that success or failure in the business world is due more to mental attitude than to brains or inherent ability. No words were ever truer for business (or any other line of endeavor). Very definitely there is a right attitude toward leadership. It can be looked upon as an opportunity to either show authority over, or serve others. It can be considered recognition because of great ability, or in all

*An address given at the Rural Electrification Job Training and Safety Conference, Washington, D. C., November 17-21, 1947.

humility we can truthfully admit there are always others more deserving and better fitted to lead than are we.

It is well to realize that leadership is often a lonely role and that the decisions we make or will be called upon to make are not always going to be popular. We can stand up with courage and meet the leadership problems as they come or we can dodge them and allow our knees to buckle when the tests come. We can be impatient and unsympathetic with those who are under our direction or we can be patient, tactful and have faith in what people will ultimately do when the searchlight of truth is turned on.

Our attitude toward leadership can be one of feeling penalized because of duty which must be performed, or unselfishly giving of such time, talent and substance as is necessary, and more. Unthinkingly and without much study or consideration of facts and situations, we can "plow ahead" and make the same mistakes in dealing with people over and over again, or we can weigh and test our judgment, correcting many faults and mistakes on the basis of past experience.

Leadership can be approached with a confidence which reassures people and is not offensive, or it can be approached with an overbearing "cocky" attitude. It can be accepted with a realization that it is only through others that we succeed, or that the individual doesn't count much and that the end always justifies the means. We can think and say, "I;" or we can think and say, "We."

There is a leadership personality, therefore, which reflects our attitude toward leadership. It shines through and permeates regardless of any attempt to cover up the real self underneath. To my way of thinking, the right attitude is the number one essential in leadership.

2. The ability to size-up and understand others. Closely upon the heels of attitude comes this number two essential of leadership. Leaders can, and often do, accomplish a great deal apparently singlehanded. But how much their power and good work is multiplied through the well-directed efforts of others. The proper selection of persons, getting the right man in the right job, and a wise division of labor depends to a large degree on the ability of a leader to size-up and pick men for responsibilities--both great and small.

Take any successful business, any occupation or profession, any worthy cause with which you are familiar and analyze it. Plainly evident among the success factors identified will be the ability to size-up people and understand them, and the first step in such accomplishment is to be interested in and concerned with events affecting others.

The thinking leader attempts to surround himself with capable persons who know more about certain specialties than does he. He develops and tests his ability as a judge of men. Most of the time he "hits;" sometimes he misses. However, he profits by each error made in sizing up human beings. Because a man may have been miscast in a role to which he is not fitted doesn't prevent the capable leader from correcting such an error.

To understand the ways of people, how and why they react as they do, requires study and experience of which there can never be too much. Even more important is knowing how people are influenced to have the desire to do the things which are best for themselves and society as a whole. For instance, some people can be appealed to through the soundness of a proposition; others are influenced greatly by example and an appeal to pride. A few can be exhorted, but many consider well a friendship in finally deciding what will be done in a given situation.

The great and the near-great in leadership the world over have tripped and will trip over this essential of sizing-up, selecting and understanding others.

3. Ability to convey ideas clearly. It's one thing to be able to think things through but quite another, sometimes, to be able to "get across" to the other fellow what you think and how an idea is to be translated into action. Whether it's a command, directions, a suggestion or hint, it is the responsibility of a leader to see that no doubt lurks in the mind of a subordinate because of faulty conveyance of thought and intent as to procedures to be followed.

When we think of the effect of our words and actions on others, we do well to think of what their effect might be on ourselves. If someone said the same thing to me, what would I make of it? Where verbal orders are used and where speed is imperative, it takes fast thinking to get thoughts and ideas across clearly and convincingly.

Compare two letters written to you by two different individuals on the same subject and see what the inferences may be. Let two men word a telegram about the same thing. Relay a message through half a dozen men and see what comes out at the end. Thoughts and ideas are easily "garbed" but the real leader conveys them clearly.

4. The ability to make decisions. No leader ever succeeds long unless he learns how and when to make decisions. Nothing lessens the effectiveness of a leader and weakens him like failure to make up his mind as to procedures. The decisions made will not always be

right but usually--from the standpoint of the leader--a decision of some kind is better than no decision at all. Indecision in the mind of the leader permeates to those he leads and causes uncertainty.

It is often said that a good leader must also be a good follower. I think it is more correct to assume that a good leader must know what makes people follow. Lack of clear-cut decisions, when necessary and advisable to make decisions, will never inspire confidence in subordinates. Bear in mind the fact also that changing a wrong decision is sometimes necessary and, when rightly done, does not weaken a strong leader in the eyes of his followers.

5. The ability to delegate responsibility and authority. Nearly everyone has had considerable responsibility resting on his shoulders, at one time or another. I venture to say, however, that every one of us can also remember when the thing we needed most to discharge our responsibility properly was a little authority to go with that responsibility.

It is well known that certain types of responsibilities lend themselves to being delegated but that other responsibilities can not be delegated. It is also recognized that foremen and supervisors must depend on subordinates for the carrying out of most of the actual work. This calls for training which will assist men in accepting and carrying out responsibility. It also calls for adequately trained managerial and supervisory personnel.

Many otherwise splendid leaders stumble over this matter of delegating the authority to go with responsibility. It has its limitations but the consistently successful leader knows he can not keep his finger tips on every detail--that his men must be relied upon to "carry out" and "carry on" without being hampered and too closely "fenced in" with authority restrictions.

6. The ability to praise and criticize men. A young fellow who worked under my direction for several years came to see me a few months ago. He was disconsolate, hurt, and a little mad. Hard working and efficient, he had been overloaded with work and responsibility which he had discharged admirably. He had been left largely to his own initiative and resources. However, no one had paid much attention to him or given him a "lift." He had done his work well but no one seemed to care. For all he knew, he might just as well have shirked and taken the line of least resistence (except that he was not that kind).

This illustration is only one of thousands which indicates faulty leadership. A good job should always be recognized even if it's only a friendly smile or a nod of the head. A little genuine approval is better than backslapping and flattery. Most people like a little praise from their leader--done in private or in

public, usually both. It has been my experience that nothing "pays off" as well as a little courtesy and praise when its deserved.

Criticism can be of two main kinds--destructive and constructive. Destructive criticism rarely pays because it hurts, wounds and throws a fellow on the defensive. It is possible to show a man where he made a mistake or where he is wrong by the constructive route. We can dwell on the positive side rather than on how bad it was. Few people resent "straight talk" in private, but everyone resents harsh public criticism and ridicule.

7. The ability to command respect. Any leader must be able to command the respect of those on his own level and those who work under him. The respect of others begins with self-respect and self-respect begins with traits of character which are an integral part of the individual. Here we can begin to put our finger on specific qualities in a leader which we admire. Among them surely will be integrity, initiative, dependability, concern for others, sincerity, and efficiency.

I have a feeling that the leaders who accomplish the most and who get the furthest are those who have the ability to command respect in a framework of friendliness and genuineness. I have a feeling that to be a leader, one does not have to take on a superman attitude or to assume that he is expected to know all the answers. I have a feeling that people like leaders who are very fair and very human.

8. The desire to improve. The last essential I call to your attention is the desire to improve. However crude and lacking the original attempts at discharging leadership responsibility, the thing that really counts is improvement as time goes on and experience is gained. But there must be a desire to improve along with a conscious effort to do better on the part of leader, or the fellow who aspires to leadership. Temporary discouragement must never be allowed to keep them from "growing" and moving forward.

"Leadership depends on simple human qualities. Above all, a leader requests the confidence of his men and this to be gained only by commanding their respect for his personal character and professional knowledge; his sense of justice and common sense; his energy, keeness and forethought; his indifference to personal danger and readiness to share the men's hardships; his cheerfulness in the face of difficulties; the clearness and simplicity of his orders and his firm insistence on their execution; the pride he takes in his command." (From the manual of the Royal Canadian Air Force.)

Those of you who attended this Conference a year ago will recall the discussion regarding where REA job training and safety fitted into vocational education. You will also recall that while the training which had been requested and given at that time was acceptable as trade and industrial education, it could not be classified as public service training.

Since our Conference here a year ago, a change has taken place which affects favorably all REA job training. On February 1, 1947, an Office of Education Circular Letter 2613 was released under the heading "Rural Electrification Maintenance and Repair as Public Service Training." In part, that release read as follows:

> "Since the generation and distribution of electric light and power, and electrical maintenance and repair are recognized trade and industrial occupations and since both operational and managerial job training offered for employees of REA appear to have the essential characteristics of training for public service occupation, it has been administratively determined that in the future all REA training which qualifies under policies set forth in C.L. 2551--issued June 25, 1945--shall be classified and reported as public service training. It is hoped that this action will eliminate confusion and make for more satisfactory reporting on the part of states."

We all recognize that this administrative action cleared the way for a more satisfactory and straight-forward program of training, insofar as vocational education--a cooperating agency--is concerned. It is in-service training for managerial, supervisory and operational personnel on REA projects that we are in a position to provide from here on, as a part of vocational training for public service occupations. Of course, trade training must be differentiated from any office and business training which may be needed.

I think this clarification is a part of the leadership which should be exerted in the job training program. Unless we can keep things clear-cut and understandable at the national level, there is slight chance of keeping lines clear at the state and local level and a training program moving forward steadily. Certainly our ideas on training are more definite and workable than in former years. We have made progress. We must continue to do so.

The evolution process in rural electrification job training has not been unlike training developments in other occupational areas of public service. Invariably, the first requests for training in any time are from the operational end. The need for this training persists, as you well know; but as time goes on, the need for still other forms and kinds of training shows up also. We have progressed a long way from the days when building REA lines occupied the bulk of the time to where running an established business efficiently apparently demands major attention.

It seems to me that rural electrification job training divides itself at present into four rather distinct parts but not "air-tight" compartments, since there is bound to be a certain amount of overlapping and cross referencing in any training program. These parts are designated as follows:

Operational Training
Managerial Training
Foreman and Supervisory Training
Instructor Training.

Suppose we take these four parts and analyze them a bit to see just what is included in the training in each instance. Operational training, offered to individuals and through organized classes, includes training needed by such groups of workers as:

Groundmen
Construction linemen
Operation and maintenance linemen
Servicemen
Repairmen
Wiring inspectors
Meter testers
Truck drivers

These workers are grouped together as operational workers because discharge of duty primarily demands manual dexterity and skill, well supplemented with appropriate technical information. These individuals need to know how to perform a rather closely knit series of jobs. The training given must, therefore, be based on, and grow out of, the skills and knowledge involved in each specific job. Examples of specific operational jobs and activities taken at random:

Clearing a right-of-way
Setting a pole
Hanging a guy
Installing a transformer
Re-fusing a line
Tightening a slack span
Replacing an insulator on a 2-phase line
Testing a meter
Reading a meter
Repairing an electric stove.

Such instruction will of necessity be given, in part, out on the job and also in a classroom. Following up the instruction to check its effectiveness is highly important. As new men come on the job, there is need for training which others have already had. Refresher training is always a need to "brush-up" experienced men and to keep abreast of new developments and techniques.

Managerial Training

In this classification, I include REA co-op managers, and directors of REA-financed systems. A series of conferences rather than classes seem to meet this need better than organized schools or classes. Co-op managers in discharging their responsibilities have encountered and will continue to encounter a good many problems which they can discuss profitably with other persons having the same or similar responsibilities.

A conference is a device for pooling experience in order to focus thinking, arrive at sound conclusions, and get solutions to specific problems. A good conference includes people of some experience who have a sincere desire to find "the answers;" and a leader often realizes that he is a director of discussion, rather than the teacher of a particular conference group.

Problems discussed in a conference group should be actual problems and should come from the individuals in the group. They grow out of discharging satisfactorily known duties and responsibilities which means they must be analyzed and well understood in order to proceed with any degree of assurance.

Foreman and Supervisory Training

Considerable training has been done by various states in this area. It includes those with the responsibility for directing and following up on the work of others. Foreman conferences are rather well understood, the purpose being to put individuals with such responsibility in a better position to handle men. The basis of such training should always be an analysis of the actual duties involved. Conferences are much more appropriate than are schools and classes. Considerable leadership training is appropriate in all foreman and supervisory training.

Instructor Training

It is quite apparent that these distinct parts of REA job training just referred to cannot be carried on effectively without some plan by which men will be trained in the art of instruction, as well as in the art of conference leading. To know a subject is one thing but to impart knowledge and develop skill in others in the same subject is something else. Knowledge of a subject is no guarantee of teaching ability.

You have had a taste here this week of instructor training. While this should improve your general instructional ability, it will not make you a trained conference leader. That requires additional training. REA instructors need both types of developed capabilities.

On the beautiful Archives Building in this city appear these words cut boldly in stone: "Study the past. What is past is prologue." They may well be deeply imprinted on the hearts and minds of every American because looking back over the trails which we travel is usually a guide to future action.

Some years ago it was discovered that rural electrification operational training was a good thing. Following in succession were the need for foreman and supervisory training, managerial training and instructor training. It will require leadership from every person engaged in this line of work to keep the program moving and improving. Everyone will have to lead to the extent of his ability and a continuous supply of leaders will have to be developed from within.

The brand and caliber of leadership in any occupation or profession is reflected in the men who represent that occupation. Observe the men, and you will know the kind of leadership they follow. Observe the leadership and the leaders, and you will know the men.

> "Bad will be the day for every man when he becomes absolutely contented with the life that he is living, with the thoughts that he is thinking, with the deeds that he is doing, when there is not forever beating at the doors of his soul some great desire to do something larger, which he knows that he was meant and made to do . . . ." (by Phillips Brooks)

RURAL ELECTRIFICATION JOB TRAINING AND SAFETY CONFERENCE

November 17 - November 21, 1947

1. Abel, W. H. - Nebraska
2. Aiken, D. W. - Mississippi
3. Alexander, C. G. - Tennessee
4. Anderson, R. T. - Alabama
5. Becker, A. E. - Illinois
6. Bidle, D. B. - Illinois
7. Blacklock, J.A.B. - Missouri
8. Bledsoe, J. L. - Alabama
9. Boggs, I. K. - Missouri
10. Borders, A. - Georgia
11. Brandon, G. L. - Ohio
12. Bridges, Q. L. - Texas
13. Brown, W. C. - Missouri

14. Callicott, J. T. - Texas
15. Carlton, H. O. - Georgia
16. Carpenter, J. T. - Texas
17. Cate, W. R. - Texas
18. Chandler, E. P. - Oklahoma
19. Cluck, C. A. - Pennsylvania
20. Coffman, D. F. - Washington, D. C. (REA)
21. Coggin, G. W. - North Carolina
22. Cooper, W. H. - Washington, D. C. (Education)
23. Couch, J. H. - Tennessee
24. Counts, J. L. - South Carolina

25. Dawes, Frank A. - Washington, D. C. (REA)
26. Dennison, B. E. - Virginia
27. DeVaughan, W. L. - North Carolina
28. Doyle, J. J. - Washington, D. C. (REA)
29. Downey, M. M. - Virginia
30. Duncan, A. L. - Texas
31. DuVall, W. J. - North Dakota

32. Edmunds, Wade M. - Washington, D. C. (RLA)
33. Edwards, E. C. - Alabama
34. Ehlers, E. F. - Wisconsin
35. Epperly, T. - Iowa
36. Farrar, O. - Arkansas
37. Findlay, T. A. - Minnesota
38. Fleming, D. A. - Washington, D. C. (NECA)
39. Foust, B. W. - Pennsylvania
40. Fuqua, C. L. - Texas

41. Gerking, G. R. - Iowa
42. Glaze, D. H. - Missouri
43. Gregory, R. W. - Washington, D. C. (Education)
44. Groat, E. C. - Illinois
45. Guthie, M. - Texas

46. Hankins, T. L. - Kentucky
47. Harris, B. E. - Alabama
48. Heath, O. L. - Virginia
49. High, C. A. - Ohio
50. Hill, C. W. - Ohio
51. Hill, R.A.C.- Washington, D. C. (REA)
52. Hoiberg, H. S. - Washington, D. C. (REA)
53. Hovenair, F. J. - Virginia
54. Hubbell, H. O. - Washington, D. C. (REA)
55. Jackson, K. N. - Arkansas
56. Jasper, E. M. - Nat'l Safety Council
57. Johnson, H. F. - Pennsylvania
58. Jones, D. M. - Tennessee

59. Kapphahn, H. - Michigan
60. Kellogg, E. H. - Indiana
61. Krenek, G. L. - Texas
62. Krug, B. - Washington, D. C. (REA)
63. LaMaster, F. H. - Washington, D. C. (REA)
64. Langston, H. L. - Georgia
65. LaVallee, W. C. - Indiana
66. Lee, E. A. - Louisiana
67. Lobdill, Bruce - Illinois
68. Long, R. C. - Pennsylvania

69. Maile, J. R. - Colorado
70. Miller, C. M. - Kansas
71. Miller, J. S. - Virginia
72. Milner, A. V. - Indiana
73. Morgan, P. - Texas
74. Morrow, J. - Iowa
75. Myer, L. C. - Michigan (NRECA - E.M.I.C.)
76. McNelley, R. L. - Texas
77. Nugent, W. C. - Colorado

78. Oeltjen, W. O. - Washington, D. C. (REA)
79. Parkes, G. H. - Pennsylvania
80. Petrich, L. - Texas
81. Pollard, R. J. - Texas
82. Pote, S. F. - Pennsylvania
83. Potthast, H. C. - Wisconsin
84. Potthoff, C. J. - Red Cross
85. Powell, G. R. - Oklahoma
86. Powers, M. L. - Oklahoma
87. Prescott, C. P. - Vermont

88. Ray, H. T. - Texas
89. Reading, G. W. - Kentucky
90. Reeley, J. F. - Ohio
91. Reese, R. M. - Ohio
92. Reid, E. A. - Kentucky

93. Rhodes, M. D. - Texas
94. Rhodes, O. - Indiana
95. Roberts, H. E. - South Carolina
96. Rogers, V. A. - Texas
97. Ross, W. A. - Washington, D. C. (Education)
98. Rushlow, W. E. - Washington, D. C. (REA)
99. Sanders, W. G. - Georgia
100. Schmidt, F. A. - Texas
101. Shehee, A. B. - Washington, D. C. (REA)
102. Sicking, L. - Texas
103. Simpson, D. - North Carolina
104. Smith, D. W.- Pennsylvania
105. Staff, J. - Kansas
106. Stephenson, L. B. - Texas
107. Stoner, R. T. - Pennsylvania
108. Stovall, E. H. - Mississippi
109. Strait, C. - Iowa
110. Swearingen, C. F. - Missouri

111. TePoorten, J. E. - Wisconsin
112. Thomas, L. A. - Washington, D. C. (REA)
113. Turner, J. L. - Missouri
114. Van Oot, B. H. - Virginia

115. Whittle, H. A. - Washington, D. C. (REA)
116. Wickard, Claude R. - Washington, D. C. (REA)
117. Williams, E. L. - Texas
118. Wood, J. - Minnesota
119. Wood, L. H. - Iowa